

*State of California*

**M E M O R A N D U M**

**TO:** PERSONNEL MANAGEMENT LIAISONS **DATE:** October 26, 1999  
**REFERENCE CODE:** 99-055

**THIS MEMORANDUM SHOULD BE DISTRIBUTED TO:**

Personnel Officers  
Employee Relations Officers  
Chief Information Officers

**FROM:** Department of Personnel Administration  
Policy and Operations Division

**SUBJECT:** Information Technology Allocations

**CONTACT:** Sandra Sales, Personnel Services Consultant  
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OFFICE VISION: DPA(SandraSales)  
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The current Unit 1 Memorandum of Understanding (MOU) contains many provisions benefiting Information Technology (IT) classifications in State service. One of these provisions is the implementation of new position allocation standards that recognize the increased complexity and responsibility of duties assigned to associate level IT positions.

The Unit I MOU refers to the upgrading of 1,000 associate level positions. This number represents an estimate of the actual upgrades anticipated during the current fiscal year. Funding for 1,000 upgrades was designated from the Unit 1 special salary adjustment monies. This money will be disbursed by the Department of Finance to departments based on the number of associate level IT employees. Upgrading associate IT positions will have an obvious impact on organizationally related supervisory positions. We expect upgrades of a comparable percentage of Data Processing Managers I and II and technical supervisors at the staff and senior levels.

**INFORMATION TECHNOLOGY ALLOCATION GUIDELINES**

The "Allocation Guides for Data Processing Classes," dated August 25, 1989 are obsolete, and should no longer be used. Attached are "Leveling Factors" to assist departments in preparing allocation proposals. These Leveling Factors should be used in combination with the existing class specifications. All IT allocations must meet the conceptual standards of the existing classification series (Programmer Analyst, Information

Systems Analyst, Systems Software Specialist, and Data Processing Manager.) While new IT classes are being developed, they are not yet completed.

The Leveling Factors are currently marked "draft," please review and apply them to the proposed associate to staff upgrades. If you have suggestions, editorial comments, etc., please forward via e-mail to [Itclassproject@dpa.ca.gov](mailto:Itclassproject@dpa.ca.gov). For your convenience, a copy of the Leveling Factors has been placed at the Department of Personnel Administration's (DPA) website ([www.dpa.ca.gov](http://www.dpa.ca.gov)). Allocation guidelines for supervisory and managerial positions will be forth coming.

#### DELEGATION

Effective immediately, delegation of new allocations to servicewide IT analytical and related supervisory/managerial classes at the Senior and above levels is withdrawn. Attached is a listing of the impacted classes. This temporary action is based on the inadequacy of resources necessary to assist departments in making these determinations. In lieu of delegation, an IT Classification Review Committee (CRC) has been established. This committee is comprised of management/executive level information technologists selected from throughout State service. The committee meets weekly and has proven invaluable in providing technical guidance and servicewide consistency for IT classification decisions.

#### PROCESS FOR ASSOCIATE TO STAFF UPGRADES

The recision of delegation is anticipated to be temporary. Once agreement is reached with each department regarding the portion of information technology work that is appropriate for assignment to staff level of programmer analyst, information systems analyst, or systems software specialist series, and the number of anticipated upgrades, all staff level allocations will be delegated.

For this agreement to be reached, please submit the following:

- (1) A general description of the IT environment. An outline of the type of information to include in this general description is attached. Typically this description will be one and no more than two pages in length.
- (2) A clear distinction between associate and staff level work. Please use the leveling factors as a guide when describing the associate and staff responsibilities. An alternative to defining the work to be assigned to the upgraded positions is to submit duty statements for positions proposed for upgrade.
- (3) The number of anticipated upgrades during the current fiscal year, associate to staff and related supervisory positions.
- (4) A current organization chart, and one reflecting anticipated upgrades, both associate to staff and supervisory.

All departmental proposals regarding IT classes will be reviewed by the CRC. Departmental representatives are welcome to participate in the CRC discussion of a particular proposal, just let us know. Otherwise, a CRC member will provide feedback on the allocation determinations.

Please direct questions or comments to Sandra Sales, or call (916) 324-9381 and your call will be routed.

Frank Tanaka  
Section Chief

Attachments

## **IMPACTED SERVICE WIDE INFORMATION TECHNOLOGY CLASSES**

Delegation is withdrawn for new allocations to the classes listed below:

<u>Class Title</u>	<u>Class Code</u>	<u>Schem Code</u>
Data Processing Manager I	1381	LK31
Data Processing Manager II	1384	LK21
Data Processing Manager III	1393	LK15
Data Processing Manager IV	1387	LK11
Senior Information Systems Analyst (Specialist)	1337	LM82
Senior Information Systems Analyst (Supervisor)	1340	LM70
Senior Programmer Analyst (Specialist)	1583	LM12
Senior Programmer Analyst (Supervisor)	1584	LM10
Systems Software Specialist II (Supervisory)	1558	LM58
Systems Software Specialist II (Technical)	1373	LM55
Systems Software Specialist III (Supervisory)	1559	LM52
Systems Software Specialist III (Technical)	1367	LM50

# DEPARTMENT IT ENVIRONMENT DESCRIPTION

Revised: Oct. 15, 1999

Provide a high level *executive summary* of your department's Information Technology (IT) environment. Classification requests should indicate where those positions are placed within this environment. Include a *very brief description* of appropriate technology areas necessary to communicate an understanding of the number of staff and size of IT activities (using bullets or summarized display techniques). Where appropriate provide gross numbers, operating system, and major software component product names. Indicate the size, criticality, and complexity of the environment for the following areas. Please limit your response to no more than two pages.

- Infrastructure Services
- Application Services and Projects
- IT Policy and Administration
- Decentralized IT Organizations and Projects

## INFRASTRUCTURE SERVICES

File Servers  
Databases  
Security  
Internet  
Wide Area Network  
Local Area Network  
Network Backbone  
Facilities and Geographic Locations Served  
Department Networked Computers (Desktops and Laptops)  
Non-Networked Computers  
Electronic Mail  
Internet Service Providers  
Network Services Such as Video, Voice Over Data, Emerging Technologies  
Data Center Services Utilized  
Other

## APPLICATION SERVICES AND MAJOR PROJECTS

Maintenance Environment  
Development Environment  
List of Major Projects or Systems  
Internet Applications (Not Text, Interactive Applications)  
Project Needs  
Essential Business Supported and Interfaces  
Other or Emerging Technologies

## POLICY AND ADMINISTRATION

Procurement  
Policy and Customer Liaison Groups

## DECENTRALIZED ACTIVITIES

Contrast activities supported and new development projects managed outside the central IT shop within the department to those described above.

# DRAFT

## INFORMATION TECHNOLOGY (IT) ANALYTICAL/PROFESSIONAL LEVELING FACTORS

**KNOWLEDGE:** Nature and extent of that body of information/facts (steps, procedures, practices, policies, concepts, theories, and principles) which the employee must possess to do acceptable work, and the skill or ability necessary to effectively apply that information in solving business problems. Knowledge is typically gained through a combination of education, training, and experience, and varies with respect to both its content domain (“breadth”) and degree of specialization (“depth”). Ordinarily, depth of knowledge is a function of both an incumbent’s classification and the functional area(s) to which s/he is assigned. Regardless of classification or functional area, however, it is expected that the knowledge domain through the associate level will typically be confined to technical details whereas at the staff level and beyond, incumbents will develop a full knowledge of accepted industry practices and standards, along with an increasingly more comprehensive understanding of their organization’s business processes and needs, its mission, and its position within the State’s overall business enterprise. Acquisition of knowledge is an incremental process and it is assumed that incumbents at a given level will possess all of the requisite knowledge, skills, and abilities of previous levels.

### Programmer I, Rg. A **Assistant ISA Rg. A**

This range constitutes the trainee level and assumes a knowledge of basic information technology concepts, practices, and methods, and a limited understanding of the business enterprise, objectives, and mission of the organization. Ability to apply this knowledge in solving simple business problems.

### **Programmer I, Rg. B** Assistant ISA Rg. B

This range is the first entry level and assumes knowledge of more general information technology concepts, practices, and methods, as well as awareness of the major computing environments, and knowledge of basic computer architecture (CPU, data storage devices, peripherals, etc.). Understanding of the organization, including its structure, reporting relationships, chain of command, business enterprise, objectives, and mission. Ability to apply this knowledge in the design and application of solutions to routine problems.

### Programmer II Assistant ISA Rg. C

This range is the second entry level and calls for a working knowledge of information technology concepts, practices, methods, and principles, and understanding of the major computing environments as well as representative platforms in each setting. General familiarity with most of the following specific technical areas: Ability to routinely apply these concepts in solving general business problems. General knowledge of the structure and business enterprise of the organization, including general reporting relationships, chain of command, etc. Working knowledge of the components of a computer, operating system concepts, and an acquaintance with various information technology architectures and common networking architectures. Familiarity with basic data structures (scalars, arrays, stacks, lists, queues, trees, etc.), file organization, and data storage and access techniques (sequential, direct, keyed, etc.). General understanding of programming logic (sequence of execution, transfer of control, rules of precedence, etc.), and an awareness of the trade-off between performance and efficiency.

### Associate ISA Associate Programmer Analyst Associate Systems Software Specialist

This range reflects the associate level and assumes familiarity with generally accepted information technology concepts, practices, methods, and principles; understanding of the major computing environments, including the strengths and weaknesses of each; and familiarity with the platforms commonly used in each setting. General familiarity with most of the following specific technical areas: Ability to utilize the reporting relationships, chain of command, etc. in securing the resources necessary to complete one’s assignments and independently solve a wide array of business problems. Knowledge of the characteristics of operating system characteristics and their role in allocating and scheduling resources, understanding of client/server architectures, familiarity with principal networking concepts and protocols, and an appreciation for the challenges inherent in transferring data across platforms. Familiarity with connectivity issues and the concept of seamless interoperability as well as the difficulties encountered in application integration across computing environments. Working knowledge of data structures, file organization, data modeling techniques, and methods for data storage and retrieval. Facility with general programming logic and applications development procedures, ability to effectively utilize buffering and addressing techniques to optimize performance. Understanding of, and ability to apply the concept of orders of magnitude in specifying and evaluating algorithms. Familiarity with general security concerns and common procedures for data back-up and recovery. Solid understanding of the business enterprise of the organization, including an appreciation for the salient political and regulatory issues faced by its

INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

**KNOWLEDGE:** Nature and extent of that body of information/facts (steps, procedures, practices, policies, concepts, theories, and principles) which the employee must possess to do acceptable work, and the skill or ability necessary to effectively apply that information in solving business problems. Knowledge is typically gained through a combination of education, training, and experience, and varies with respect to both its content domain ("breadth") and degree of specialization ("depth"). Ordinarily, depth of knowledge is a function of both an incumbent's classification and the functional area(s) to which s/he is assigned. Regardless of classification or functional area, however, it is expected that the knowledge domain through the associate level will typically be confined to technical details whereas at the staff level and beyond, incumbents will develop a full knowledge of accepted industry practices and standards, along with an increasingly more comprehensive understanding of their organization's business processes and needs, its mission, and its position within the State's overall business enterprise. Acquisition of knowledge is an incremental process and it is assumed that incumbents at a given level will possess all of the requisite knowledge, skills, and abilities of previous levels.

Staff Information System Analyst  
***Staff Programmer Analyst***  
System Software Specialist I, Tech

This is the journey level and it is expected that incumbents will demonstrate true proficiency with respect to data processing concepts, practices, methods, and principles along with an understanding of, and currency with respect to evolving industry trends and standards. Ability to effectively apply this knowledge in evaluating alternative proposals and recommending optimal solutions. While some degree of specialization in enterprise development and maintenance applications or network processing may be apparent, incumbents at this level are typically still generalists exhibiting a wide breadth of knowledge of both areas and ability to actively apply it to a variety of settings. Working knowledge of large scale database architectures, data communication protocols, and network configurations. Ability to apply concepts such as portability and scalability in designing, implementing, and evaluating long term, complex information technology systems. Extensive knowledge of the organization's business enterprise and ability to take into account the larger business perspective in proposing and designing information technology solutions. Knowledge of the roles and responsibility of oversight and regulatory agencies in assuring quality control and dependability. Ability to work independently in effectively securing resources and expertise through proper channels within the organization while developing and managing large and complex systems.

Senior Programmer Analyst  
Senior Information Systems Analyst  
System Software Specialist II, Tech.

This is the expert level, and as that term implies, those incumbents in Information Technology Specialist positions will display exceptional knowledge with respect to central data applications or network operations. Information Technology Business Consultants at this level demonstrate high-level knowledge of system design, applications development life-cycle issues and principles, and general information technology business procedures and practices. Extensive knowledge of data processing concepts, practices, methods, and principles and a global understanding of, and currency with respect to evolving industry trends, practices, and standards. Demonstrated ability to apply this knowledge, and sensitivity to the business perspective of the organization in solving the more complex business problems. Interpersonal, communication, and leadership skills necessary to serve in a lead capacity on the larger and more complex projects. Understanding of the State budgeting process, legislative and administrative procedures, procurement documents and procedures, licensing issues, and the roles and responsibilities of oversight and regulatory agencies in assuring quality control and system dependability. Ability to network and interface effectively with other technical personnel and the organization's management in securing the resources, expertise, and approvals necessary to implement large scale information technology solutions.

System Software Specialist III, Tech.

At the mastery level, incumbents possess those knowledges, skills, and abilities that truly set them apart from other information technology professionals as leaders with respect to the State's information technology enterprise. Incumbents at this level possess the requisite knowledge to plan, design, develop, implement, test, evaluate, and administer the largest and most complex information technology projects, either as integral solution for their organization's overall business enterprise, or as multi-departmental solutions for larger State business needs and objectives. Examples of systems and activities pertinent to this level include complex operating systems and proprietary software packages in large mainframe environments, large scale multi-user multi-tasking database management systems spanning multiple organizational entities accessed by a diverse array of on-line and batch users, networking configurations providing seamless application integration and back-end database access across a variety of platforms, and multi-departmental, multi-disciplinary research, planning, and evaluation consortia with responsibility for addressing the highest level of statewide information technology issues. In each setting, incumbents at this level contribute the highest levels of technical knowledge, business expertise and leadership in meeting the State's most complex and critical business needs, demonstrating true mastery of the area of specialization (enterprise development and maintenance, networks, or business consulting), and an extensive, global, and up-to-date perspective on evolving industry trends, practices, and standards.



INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

**SUPERVISION RECEIVED:** Covers the nature and extent of direct or indirect controls exercised by the supervisor, the employee's personal responsibility, and the thoroughness with which completed work is reviewed. Controls are exercised by the supervisor in the way assignments are made, instructions are provided to the employee, priorities and deadlines are set, and objectives and boundaries are defined. Responsibility of the employee depends upon the degree to which the employee is personally expected to develop the sequence and timing of various aspects of the work, to modify or recommend modification of instructions, and to participate in establishing priorities and defining objectives.

Programmer I, Rg. A  
***Assistant ISA Rg. A***

For both one-of-a kind and repetitive tasks the supervisor makes specific assignments that are accompanied by clear, detailed, and specific instructions. The employee works as instructed and consults with the supervisor as needed on all matters not specifically covered in the original instructions or guidelines. For all positions the work is closely controlled and the employee's independence of action is very limited. For some positions, the control is through the structured nature of the work itself; for others it may be controlled by the circumstances in which it is performed. In some situations, the supervisor maintains control through review of the work that may include checking progress or reviewing completed work for accuracy, adequacy, and adherence to instructions and established procedures.

***Programmer I, Rg. B***  
Assistant ISA Rg. B

The supervisor provides continuing or individual assignments by indicating generally what is to be done, indicating limitations, quality and quantity expected, deadlines and priority of assignments. The supervisor provides additional, specific instructions for new, difficult, or unusual assignments including suggested work methods, or advice on source material available. The employee uses initiative in carrying out recurring assignments independently without specific instruction, but refers deviations, problems, and unfamiliar situations not covered by instructions to the supervisor for decision or help. The supervisor assures that finished work and methods used are technically accurate and in compliance with instructions or established procedures. Review of the work increases with more difficult assignments if the employee has not previously performed similar assignments.

Programmer II  
Assistant ISA Rg. C

The supervisor makes assignments by defining objectives, priorities and deadlines, and assists employees with unusual situations that do not have clear precedents. The employee plans and carries out the successive steps and handles problems and deviations in the work assignment in accordance with instructions, policies, previous training, or accepted practices in the occupation. Completed work is usually evaluated for technical soundness, appropriateness, and conformity to policy and requirements. The methods used in arriving at the end results are not usually reviewed in detail.

Associate ISA  
Associate Programmer Analyst  
Associate Systems Software Specialist

The supervisor makes assignments by generally defining objectives, priorities, and deadlines. Within the scope and complexity of associate-level IT assignments, incumbents operate within a largely unsupervised environment but within a clear accountability framework. Incumbents possess the necessary general and technical competencies to prioritize work, initiate contacts, and resolve issues. The incumbent is expected to know and apply knowledge about the organization's customers, stakeholders, business priorities and environment in order to complete work assignments in an effective, accurate, and timely manner.



INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

**SUPERVISION RECEIVED:** Covers the nature and extent of direct or indirect controls exercised by the supervisor, the employee's personal responsibility, and the thoroughness with which completed work is reviewed. Controls are exercised by the supervisor in the way assignments are made, instructions are provided to the employee, priorities and deadlines are set, and objectives and boundaries are defined. Responsibility of the employee depends upon the degree to which the employee is personally expected to develop the sequence and timing of various aspects of work, to modify or recommend modification of instructions, and to participate in establishing priorities and defining objectives.

Staff Information System Analyst  
***Staff Programmer Analyst***  
System Software Specialist I, Tech

The supervisor provides administrative direction with assignments in terms of broadly defined missions or functions. The employee has responsibility for planning, designing, and carrying out programs, studies or other work independently. Results of the work are considered as technically authoritative and are normally accepted without significant change. If the work should be reviewed, the review concerns such matters as fulfillment of program objectives, effect of advice and influence of the overall program, or the contribution to the advancement of technology. Recommendations for new projects and alteration of objectives are usually evaluated for such considerations as availability of funds and other resources, and broad program goals or priorities. Incumbents at the staff level will either take responsibility for substantial technical decision-making or for teams of staff. If the latter, incumbents demonstrate the basic competencies associated with team leadership.

Senior Programmer Analyst  
Senior Information Systems Analyst  
System Software Specialist II, Tech.

The supervisor provides general administrative direction concerning assignments. There is a broad scope of professional responsibility and accountability at the senior level. Incumbents function as leads on major projects and complete independence is expected. There is a strong team leadership component required to perform the work. Incumbents are required to demonstrate expertise connected with staff direction and motivation, financial control, and achieving targets of delivery and quality. Incumbents have defined responsibility and authority for decision making related to major projects or in an advisory function.

System Software Specialist III, Tech.

Positions at the principal level require little or no direct supervision. They typically report to higher-level positions where only broad administrative and policy direction is provided. Principal consultant or advisory positions (often specialized) have the ability to commit the organization on statewide technology issues. Incumbents play a major part in formulating IT strategy and policy across the organization. At the principal level incumbents demonstrate advanced leadership competencies.

INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

**GUIDELINES:** Covers the nature of guidelines and the judgement needed to apply them. For example, guides include: desk manuals, established procedures and policies, operations manuals, and reference materials such as data dictionaries, programming manuals, hardware and software manuals, and on-line knowledge systems. Since individual jobs throughout IT classifications vary in the specificity, applicability, and availability of the guidelines for performance of assignments, the constraints and judgmental demands placed upon employees also vary. The existence of specific instructions, procedures, and policies may limit the opportunity of the employee to make or recommend decisions or actions. However, in the absence of specific instructions, procedures and policies, employees in Senior and Principal classifications use considerable judgement in researching problems and developing new solutions and methods.

Programmer I, Rg. A  
***Assistant ISA Rg. A***

Specific oral and/or written guidelines and procedures covering all important aspects of the assignment are provided to the employee. The employee works in strict adherence to the guidelines while undergoing a planned program of training and experience acquisition designed to establish familiarity with basic IT functions and processes; deviations must be authorized by the supervisor.

***Programmer I, Rg. B***  
Assistant ISA Rg. B

Procedures for doing the work have been established and a number of specific guidelines are available. The number and similarity of guidelines and work situations requires the employee to use judgement in locating and selecting the most appropriate guidelines, references, manuals, and procedures for application, and in making minor deviations to adapt the guidelines in specific cases. After appropriate initial training, the incumbent is able to function effectively across tasks established using available tools, methodologies and/or equipment without frequent references to others. Situations in which the existing guideline cannot be applied, or significant proposed deviations from the guideline, are referred to the supervisor.

Programmer II  
Assistant ISA Rg. C

In addition to use of guidelines described in Range B, employees at this level may also determine which of several established available alternatives to use. Incumbents are familiar with, guidelines and can select them appropriately. They also use applicable methods procedures and standards effectively.

Associate ISA  
Associate Programmer Analyst  
Associate Systems Software Specialist

Guidelines are available, but are not completely applicable to the work or have gaps in specificity. The employee uses judgment in interpreting and adapting, guidelines such as policies, operations manuals, and work directions for application to specific cases or problems. The employee analyzes results and recommends changes. The incumbent is thoroughly familiar with the available tools, methods, and procedures associated with their area of specialization. Incumbents possess adequate technical familiarity to make correct choices from alternatives in all these areas. They are also able to apply selected technical tools, guidelines, etc., in such a way as to meet set targets of cost, time, quality, and performance.

INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

**GUIDELINES:** Covers the nature of guidelines and the judgement needed to apply them. Guides used include, for example: desk manuals, established procedures and policies, operations manuals, and reference materials such as data dictionaries, programming manuals, hardware and software manuals, and on-line knowledge systems. Individual jobs in different IT classifications vary in the specificity, applicability, and availability of the guideline for performance of assignments. Consequently the constraints and judgmental demands placed upon employees also vary. For example, the existence of specific instructions, procedures, and policies may limit the opportunity of the employee to make or recommend decisions or actions. However, in the absence of procedures or under broadly stated objectives, employees in higher-level classifications may use considerable judgement in researching problems and developing new solutions and methods.

Staff Information System Analyst  
***Staff Programmer Analyst***  
System Software Specialist I, Tech

Administrative and technical policies and precedents are applicable, but are stated in general terms. Guidelines for performing the work are scarce or of limited use. The incumbent uses initiative and resourcefulness in deviating from traditional methods or in researching emerging technologies to develop new methods, criteria, and/or new policies.

Senior Programmer Analyst  
Senior Information Systems Analyst  
System Software Specialist II, Tech.

Guidelines are broadly stated and nonspecific, e.g., broad policy statements require extensive interpretation. Incumbents must use judgment and ingenuity in interpreting the intent of the guidelines that do exist and in developing applications to specific areas of work. Frequently, the incumbent is recognized as a technical authority in the development and interpretation of guidelines.

System Software Specialist III, Tech.

Guidelines are broadly stated and nonspecific, e.g., broad policy statements require extensive interpretation. Incumbents at this level typically function in a specialized consultant or advisory role where the implementation of advice on plans proposed has a major impact on the effective use of IT in a significant undertaking. Incumbents play a major role in the development and interpretation of guidelines that are often used to formulate IT strategy and policy across the organization.

INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

**SCOPE AND EFFECT:** Covers the relationship between the scope of the work, i.e., the purpose, breadth, and depth of the assignment, and the effect of work products or services both within and outside the organization. Effect evaluates whether the work output facilitates the work of others, provides timely services of a personal nature, or impacts the adequacy of research conclusions. To properly understand and evaluate the impact of the position, consider both the scope and effect of the work to allow consistent evaluation.

Programmer I, Rg. A  
***Assistant ISA Rg. A***

This is the entry level into the class. Scope will be very limited in this range. The work product or service is typically required to facilitate the work of others, however, it has little impact beyond the immediate organizational unit or beyond the timely provision of limited services to others. After initial training, the incumbents are able to function across tasks which are largely routine and predictable and provide a broad foundation as a basis for progression. They are also expected to seek guidance from a supervisor before proceeding.

***Programmer I, Rg. B***  
Assistant ISA Rg. B

After appropriate initial training, incumbents are given increased responsibility commensurate with the development of general and technical competencies. Incumbents are able to function effectively across varied tasks without frequent references to others. There is less direct review, but still not significant breadth in assigned tasks. Products and services include problem solving and widespread monitoring. Many customers are dependent on the effective delivery of services.

Programmer II  
Assistant ISA Rg. C

At this level the incumbent has moved past the trainee stage in the basic aspects of the job and is given responsibility to start and finish more complex work with less supervision. The work product or service affects the design or operation of systems, programs, or equipment. There are distinct increases in the scope of the work and effect on products and services. Incumbents assume responsibility for a definable portion of a project, or client services function. The scope involves working on a piece of a plan or project from beginning to end.

Associate ISA  
Associate Programmer Analyst  
Associate Systems Software Specialist

The work product or service at the associate level affects a wide range of established activities, major activities of organizational concerns, or the operation of other organizations. The scope will be broad, commensurate with the breadth and depth of general and technical competencies. Assignments involve multiple tasks, single significant functions, or multiple functions. The work impacts many users or customers at many locations. Service level objectives are clearly defined and rigorous.

INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

SCOPE AND EFFECT: Covers the relationship between the nature of the work, i.e., the purpose, breadth, and depth of the assignment and the effect of work products or services both within and outside the organization. Effect measures such things as whether the work output facilitates the work of others, provides timely services of a personal nature, or impacts on the adequacy of research conclusions. The concept of effect alone does not provide sufficient information to properly understand and evaluate the impact of the position. The scope of the work completes the picture, allowing consistent evaluations.

Staff Information System Analyst  
***Staff Programmer Analyst***  
System Software Specialist I, Tech

Full competence in a specialized analytical role is demonstrated at this level of proficiency. Technical accountability for work done and decisions taken is expected. The ability to give technical or team leadership is demonstrated at this level with a high degree of technical versatility and broad industry knowledge. The scope of the work involves isolating and defining unknown conditions, using technologies to resolve critical problems, and developing new applications of existing technologies. The work product or service affects the work of other experts, the development of major aspects of technology projects, programs or missions, or the products and services of substantial numbers of people. This is the work of a clearly defined specialist.

Senior Programmer Analyst  
Senior Information Systems Analyst  
System Software Specialist II, Tech.

Incumbents clearly demonstrate team leadership competencies and model the organization values in all activities. Primary responsibilities include either project management or senior consultant or advisory positions where the implementation of advice or plans proposed has a significant impact on the organization's business success. Incumbents have defined responsibility and authority for decision making. The scope of the work involves planning, developing, and implementing technological solutions that are essential to the mission of the overall organization or affect large numbers of people on a long-term or continuing basis.

System Software Specialist III, Tech.

Incumbents effectively exercise power for the benefit of the organization by initiating key actions, influencing key decisions or obtaining important resources. Incumbents possess a wide and deep practical IT knowledge basic, which includes emerging, "cutting-edge" technologies. They are recognized in the industry as an expert in their area of specialization. Incumbents exhibit a mastery level of team leadership qualities and play a major part in formulating IT strategy and policy. They have extensive decision-making authority and direct the most critical/complex projects, where it is expected that the cost of error in making decisions or giving advice would have a serious detrimental effect on the operating efficiency of the undertaking or function.

INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

**COMPLEXITY:** Covers the nature, number, variety, and intricacy of steps, processes, or methods in the work performed; the difficulty in identifying what needs to be done; and the difficulty and originality involved in performing the work. Complexity also is determined by the breadth of impact, fiscal implications, impact on the business success of the organization and its customers and public and media sensitivity.

Programmer I, Rg. A  
***Assistant ISA Rg. A***

Range A is the entry level to the class. Incumbents are capable of learning new processes as required and, under supervision, applying newly acquired knowledge. Tasks will be limited in scope and duration. The decision regarding what needs to be done involves various choices requiring the incumbent to recognize the existence of and differences among a few easily recognizable situations. Incumbents demonstrate an organized approach to their assignments, and the ability to produce required results within a supervised environment.

***Programmer I, Rg. B***  
Assistant ISA Rg. B

At this level actions to be taken or responses to be made differ in such things as the source of information, the knowledge of transactions or entries, or other differences of a factual nature. As job knowledge and skill increase, so do the number of tasks, which involves multi-tasking and imposed deadlines. Within a short time frame, incumbents are able to plan, schedule, and monitor their own work. Analysis of work is expected to show broader knowledge of the work environment, business patterns, and expectations. Incumbents demonstrate a rational and organized approach to tasks set, and continue to operate within a structured routinely supervised environment.

Programmer II  
Assistant ISA Rg. C

The work includes various analytical duties involving different and unrelated processes and methods. The decision regarding what needs to be done depends upon the analysis of the subject, phase, or issues involved in each assignment, and the chosen course of action may have to be selected from many alternatives. Multiple tasks and deadlines become the routine for this range. Incumbents are independent, self starting, and organized. Incumbents demonstrate a systematic, disciplined, and analytical approach to problem solving. Incumbents have acquired an awareness of the context of their specific technical role within the usage of IT in the relevant area of employment, and within the employer's business as a whole.

Associate ISA  
Associate Programmer Analyst  
Associate Systems Software Specialist

Work at this level requires engaging in business relationships requiring tact and perspective. Work will also involve being familiar with the implication and uses of new technologies. Incumbents show initiative and make time available to ensure general and technical competencies are kept up-to-date in line with industry developments.

INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

**COMPLEXITY:** Covers the nature, number, variety, and intricacy of steps, processes, or methods in the work performed; the difficulty in identifying what needs to be done; and the difficulty and originality involved in performing the work. Complexity also is determined by the breadth of impact, fiscal implications, impact on the business success of the organization and its customers and public and media sensitivity.

Staff Information System Analyst  
***Staff Programmer Analyst***  
System Software Specialist I, Tech

The work includes varied duties requiring many different and unrelated processes and methods applied to a broad range of activities or substantial depth of analysis. The work requires originating new techniques, establishing criteria, or developing new information. The work also involves demonstrating leadership in identifying new issues and business opportunities and in assisting management with the most sensitive issues. Incumbents demonstrate an in-depth understanding of the relationship of their technical specialization and/or project responsibilities to the work as a whole. Incumbents are able to propose technical solutions within their scope of expertise which take into account the customer's business needs. Presentations will typically be a routine function of the job.

Senior Programmer Analyst  
Senior Information Systems Analyst  
System Software Specialist II, Tech.

In addition to the complexity at the staff level, decisions regarding the work to be done include largely undefined issues and elements. The work requires extensive probing and analysis to determine the nature and scope of the problems. The work contributes to the solutions of complex problems, architecture reviews, or strategic and tactical plans. Incumbents demonstrate all the necessary qualities of effective project or function leadership and play a key role in the success in the department's exploitation of IT and to the business as a whole. Incumbents also possess the general and technical competencies needed to train/mentor organization staff and customers in a complex technical area or process.

System Software Specialist III, Tech.

The work at the principal level requires continuing efforts to establish concepts, theories, or programs; or to resolve unyielding problems. Assignments require an advanced level of organizational understanding and support of innovative technical pursuits. Incumbents demonstrate extensive knowledge and skills in one or more specific technology, trends, technical components, interfaces, protocols, and architectures. Incumbents play a major role in formulating IT strategy and policy throughout the organization, and in some cases servicewide.

INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

PERSONAL CONTACT: Includes in-person and telephone contacts outside the supervisory chain-of-command. Levels described under this factor are based on requirements for initial contact, difficulty in communication, and the setting (e.g., the degree to which the employee and those contacted recognize their relative roles and authorities).

Programmer I, Rg. A  
***Assistant ISA Rg. A***

The personal contacts are typically with employees within the immediate organization, office, project, or work unit, and related or support units. Contacts can also be with vendors or customers in very highly structured situations (e.g., the purpose of the contact and the question of with whom to deal with are relatively clear). At this level incumbents possess basic oral and written communication skills.

***Programmer I, Rg. B***  
Assistant ISA Rg. B

Daily contacts are made with systems users to answer questions, solve problems, and clarify instructions. Incumbents initiate contact with other information technology support staff to solve problems and ensure conformity of methods and practices. Incumbents contact vendors to ask questions and get information on existing or new technologies. Incumbents have developed sufficient oral and written communication skills for effective dialog with peers and higher-level staff.

Programmer II  
Assistant ISA Rg. C

Daily contact is made with a wide range of systems users to provide technical information and solve problems. Incumbents initiate routine contact with other IT staff, vendors, and external entities to coordinate problem solving, methods, and practices. Incumbents may also contact users and staff throughout the organization to discuss operational or business needs and systems requirements. Incumbents demonstrate formal and informal communications ability, both orally and written, when dealing with peers and customers.

Associate ISA  
Associate Programmer Analyst  
Associate Systems Software Specialist

In addition to the contacts established in Range C, personal contacts are not routine; the purpose and extent of each contact is different. The role and authority of each party is identified and developed during the course of the contact. Incumbents are expected to communicate effectively, both orally and in writing with peers, clients and customers. Presentations will be expected based on the work product.



INFORMATION TECHNOLOGY  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

PERSONAL CONTACT: Includes face-to-face and telephone contacts with persons not in the reporting chain. Levels described under this factor are based on what is required to make the initial contact, the difficulty in communicating with those contacted, and the setting in which the contact takes place (e.g., the degree to which the employee and those contacted recognize their relative roles and authorities).

Staff Information System Analyst  
***Staff Programmer Analyst***  
System Software Specialist I, Tech

Incumbents contact managers, technical staff, and systems users to provide and make recommendations regarding systems and problems requiring solutions. There is regular contact with IT staff, vendors, and external entities to coordinate problem solving and ensure conformity of methods and practices. Incumbents contact users to discuss business and system requirements, contractors to provide oversight, and vendors to discuss existing or new technology. Incumbents communicate effectively, both orally and in writing with subordinates, peers, clients, and customers at all levels. Incumbents demonstrate presentation skills.

Senior Programmer Analyst  
Senior Information Systems Analyst  
System Software Specialist II, Tech.

Incumbents consult with or advise management, administrative or executive staff on the planning, development, implementation, and coordination of IT issues. This includes the operations, maintenance, installation, and construction of information systems on a regular basis. Incumbents frequently contact vendors to assess new technologies; contractors to provide oversight, negotiate contract modifications, and analyze compliance with contract specifications. Incumbents communicate effectively, both orally and in writing with subordinates, peers, clients, customers, and higher level staff. Incumbents demonstrate a high level of presentation skills to all levels of audience.

System Software Specialist III, Tech.

In addition to contacts made at the senior-level, incumbents contact high-level entities in unique situations where it can be difficult to establish the contact and identify their goals. Incumbents communicate effectively, both orally and in writing with subordinates, peers, clients, customers, and higher level staff. Incumbents demonstrate a high level of presentation skills applicable to all levels of audience.

INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

PURPOSE OF CONTACTS: Ranges from factual exchanges of information to situations involving significant or controversial issues and differing viewpoints, goals, or objectives.

Programmer I, Rg. A  
***Assistant ISA Rg. A***

Incumbents obtain, clarify or give facts and information, which vary in nature. The facts and information range from easily understood and clear, to more highly technical.

***Programmer I, Rg. B***  
Assistant ISA Rg. B

Incumbents obtain, clarify, or give facts and information, which vary in nature. The facts and information range from easily understood and clear, to more highly technical.

Programmer II  
Assistant ISA Rg. C

Incumbents plan, coordinate, and advise on work efforts which resolve operating problems. Incumbents influence and motivate individuals working toward mutual goals with basic cooperative attitudes.

Associate ISA  
Associate Programmer Analyst  
Associate Systems Software Specialist

Incumbents plan, coordinate, and advise on work efforts which resolve operating problems. Incumbents influence and motivate individuals and teams working toward mutual goals which have basic cooperative attitudes. Incumbents obtain consensus where there may be controversy, but similar goals.

INFORMATION TECHNOLOGY (IT)  
ANALYTICAL/PROFESSIONAL LEVELING FACTORS

PURPOSE OF CONTACTS: Ranges from factual exchanges of information to situations involving significant or controversial issues and differing viewpoints, goals, or objectives.

Staff Information System Analyst  
***Staff Programmer Analyst***  
System Software Specialist I, Tech

Incumbents influence, motivate, persuade, and lead individuals or groups. Those contacted may be hesitant or skeptical, so the incumbent must be skillful in approaching the individual or group in order to obtain the desired response (i.e., obtain agreement where there is controversy and dissimilar goals).

Senior Programmer Analyst  
Senior Information Systems Analyst  
System Software Specialist II, Tech.

Incumbents actively participate in conferences, meetings, hearings, or presentations involving problems or issues of considerable consequence or importance. Individuals contacted typically have diverse goals, or objectives requiring the incumbent to achieve a common understanding of the problem and a satisfactory solution by convincing the individuals, arriving at a compromise, or developing suitable alternatives.

System Software Specialist III, Tech.

In addition to the purpose of contacts at the senior level, incumbents justify, defend, negotiate, or settle matters involving significant or controversial issues. Incumbents actively participate in conferences and meetings with high level individuals holding conflicting views. Incumbents must be skillful in reaching compromise solutions.